ABSTRACT

IMVROVEMENT POWER QUALITY IF HYBRID POWER SYSTEM (OHOTOVOLTAIC AND MICROHYDRO) USE POWER FILTER INVERTE

By

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Margosari village is one of a village in Kabupaten Pesawaran that has much water resources and sunlight. Margosari village uses microhydro power plant to supply electricity to fulfill its people need. But, there are some problems in voltage drop and harmonics on microhydro system. One of the ways to fix the voltage drop and harmonics is the installation of hybrid generator between solar power plant and microhydro power plant which is equipped by power filter inverter.

Power filter that has been made is tested to get the data about voltage and harmonics as the simulation reference towards Etap. The data is compared between network that is supplied by microhydro power plant and the network that is supplied by hybrid power plant which is equipped by power filter inverter. As the result of simulation, Power Filter Inverter can increase voltage up to 18.44% and decrease flow conductor as much as 18.37%. Power Filter Inverter can compensate harmonics 42% from the previous one, which is 60%.

Key word: microhydro, photovoltaic, power quality, harmonic, drop voltage, power filter inverter.